



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,652	02/28/2002	William R. Ashurst	02307V-121600US	6884

20350 7590 07/07/2004

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

MARKHAM, WESLEY D

ART UNIT PAPER NUMBER

1762

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

10/086,652

Applicant(s)

ASHURST ET AL.

Examiner

Wesley D Markham

Art Unit

1762

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 21 June 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: see attached Office Action.
6. ☒ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 1-6 and 9-21.

Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____

WDM



DETAILED ACTION / ADVISORY ACTION

Response to Arguments / Declaration under 37 CFR 1.131

1. Acknowledgement is made of the Request for Reconsideration filed by the applicant on 6/21/2004 (with a certificate of mailing dated 6/18/2004), along with a declaration under 37 CFR 1.131. Claims 1 – 6 and 9 – 21 are currently pending in U.S. Application Serial No. 10/086,652.
2. Applicant's arguments filed on 6/21/2004 have been fully considered but they are not persuasive. First, the applicant attempts to antedate the Leung et al. patent by submitting a supplemental declaration of Mr. William R. Ashurst, which includes a transcription of the entries in Exhibit B of the March 4 declaration plus the declarant's explanation of each of the entries. However, this declaration will not be considered because it is not directed solely to issues raised by the examiner in the final rejection. Specifically, the current declaration is an attempt to supplement the March 4 declaration in order to antedate the Leung et al. patent and the rejections associated therewith. However, the Leung et al. patent has been cited and relied upon by the examiner throughout the prosecution of the instant application (i.e., prior to the final rejection). As such, the current declaration is directed, at least in part, to issues raised by the examiner prior to the final rejection, and the declaration will not be considered. Regarding the claims in general, the examiner notes that the presently claimed process requires applying a silane coating to a surface that is at least partially wettable by water by exposing the surface to a vapor phase dihalodi(C₁-C₃ alkyl)silane) and water vapor, in a non-oxidizing atmosphere at a total

pressure of 10^{-12} torr to 100 torr, under conditions resulting in the bonding of specific silyloxy groups to the surface. In order to be sufficient to antedate the Leung et al. patent, the examiner notes that a declaration under 37 CFR 1.131 must show that the claimed invention / process was reduced to practice prior to 5/7/2001.

3. Second and regarding the combination of Leung et al. with Mayer et al., the applicant argues that Leung et al. teaches that water should be avoided since it interferes with vapor-phase reactions, while Mayer et al. expressly include water in the atmosphere with no mention of interference with the reaction, which combined teaching is a contradiction. The applicant also notes that the silane compound taught by Mayer et al. is quite different than the applicant's claimed silane compound, and that the Mayer et al. publication represents work performed and published earlier than Leung et al. (and thus can hardly be termed an improvement). In response, this argument is not convincing. To begin, the examiner does recognize that the teachings of Leung et al. (e.g., to avoid water vapor) and Mayer et al. appear, on the surface, to be contradictory. However, after careful consideration, the examiner maintains that there is both sufficient motivation and a reasonable expectation of success when combining the teachings of Leung et al. and Mayer et al. in the manner done so by the examiner. While Mayer et al. is, on the whole, directed to using FOTS as the silane precursor, Mayer et al. explicitly teaches the following: "It is often assumed that chlorosilanes (emphasis added by examiner) will react with surface hydroxyl groups to form covalent linkages to the surface. However, Klaus and co-workers have found that surface hydroxyl groups react with gaseous

chlorosilanes only at high temperatures and high doses of the chlorosilane" (page 2436, section B., paragraph 2). The solution to this problem taught by Mayer et al. is to add water vapor during the exposure. The aforementioned teaching of Mayer et al. clearly shows that the problem (i.e., getting chlorosilanes to react with surface hydroxyl groups to form covalent linkages to the surface) is not limited to FOTS (as suggested by the applicant), but is applicable to chlorosilanes in general. Therefore, one of ordinary skill in the art would have been motivated to add a small amount of water vapor to the chlorosilane-containing gaseous mixture of Leung et al. with the reasonable expectation of successfully and advantageously improving the deposition process (e.g., forming a stable film, without the need to use high temperatures and high doses of the chlorosilane, as taught by Mayer et al.). The fact that the Mayer et al. publication represents work performed and published earlier than Leung et al. would not, in and of itself, indicate to one of ordinary skill in the art that using water vapor in the process is not an improvement (e.g., because there is no indication that Leung et al. had knowledge of the work of Mayer et al. when stating that the exposure should be performed in the absence of water vapor).

4. Third and regarding the Sato et al. reference, alone and in combination, the applicant argues that the explicit statement of Sato et al. (i.e., "Experiments showed that what has been discussed above with reference to HMDS applies to other members of the group in substantially the same way") is disproved by the applicant's results. To support this argument, the applicant states that (1) performing the deposition in air vs. a non-oxidizing atmosphere, (2) performing the deposition at

atmospheric pressure vs. performing it at a pressure less than 100 torr, and (3) completing the deposition in twenty hours vs. ten minutes are not "substantially the same way". In response, this argument is not convincing. The examiner respectfully submits that the applicant is misinterpreting the statement of Sato et al. that "Experiments showed that what has been discussed above with reference to HMDS applies to other members of the group in substantially the same way". This statement simply indicates that the process explicitly taught by Sato et al. in regards to HMDS can also be practiced with "other members of the group" (e.g., DCDMS). The statement is not meant to show or imply that (1) performing the deposition in air vs. a non-oxidizing atmosphere, (2) performing the deposition at atmospheric pressure vs. performing it at a pressure less than 100 torr, and (3) completing the deposition in twenty hours vs. ten minutes are substantially the same. On the contrary, the conditions of the process of Sato et al., including (1) the specific vapor-phase silane compound utilized, (2) the specific substrate / surface material treated, (3) the process temperature, (4) the process pressure, and (5) the exposure time are the same as the applicant's claimed and disclosed process conditions. Finally, the applicant argues that no one skilled in the art would think that a process that is known to require a twenty-hour exposure time could be done in only ten minutes. In response, one embodiment of Sato et al. is performed in air at atmospheric pressure, and requires 20 hours of exposure time, as stated by the applicant. However, Sato et al. also teaches that the process is not limited to such an

Art Unit: 1762

embodiment and can be performed for a period between 5 and 150 minutes at a vacuum of 10 Torr or greater (Col.9, lines 34 – 50).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


WDM

Wesley D Markham
Examiner
Art Unit 1762


SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700